X. GEOLOGIC SOURCES OF ARCHAEOLOGICAL OBSIDIAN FROM SITES IN NORTHERN AND CENTRAL VERACRUZ, MEXICO

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A sample of 102 obsidian artifacts from central and northern Veracruz, Mexico, has been analyzed by rapid-scan x-ray fluorescence techniques (cf. Hester, Jack and Heizer 1971:93) for the trace elements rubidium (Rb), zirconium (Zr) and strontium (Sr). Results of these analyses are plotted in Figure 2. The obsidian was obtained from the sites of Cempoala, Quiahuitzlan and El Tajin (Figure 1) during a research trip in the winter of 1970. All of the specimens are from surface contexts, but since nothing has been published regarding the geologic obsidian sources represented at sites in this area of Veracruz, we feel that it may be useful to make our findings available. Obsidian types discussed here are identical to those used by Hester Jack and Heizer (1972).

Thirty-nine obsidian specimens (blades, flakes and fragments) were secured from the site of Cempoala, the 16th century Totonac center located 25 miles above the city of Veracruz. Three distinct obsidian types were recognized: type A (23.1%; Cerro de las Navajas, Hidalgo); type D (33.3%; Zaragoza, Puebla); and, type E (43.6%; Cerro de Minas, Puebla).

The site of Quiahuitzlan is about 15 miles north of Cempoala. Most of the archaeological remains at this site can be attributed the Postclassic period. Fifty-six obsidian specimens-blades, flakes, and a blade core-were analyzed. The bulk of the sample (71.4%) is of type D (Zaragoza) obsidian. Type E (Cerro de Minas) obsidian constitutes 21.4% of the sample, with the remainder representing type A (1.8%; Cerro de las Navajas), the unidentified type B source (1.8%) and two specimens (3.6%) which fall outside the limits of previously recognized types.

Seven obsidian artifacts (blades and blade fragments) from the site of El Tajin were submitted to us by Mr. and Mrs. Ray Krotser; these specimens probably date from the Classic period. Six (85.7%) are of Zaragoza

obsidian, and the seventh is of type F, the geologic source of which remains unknown.

It is apparent from our data that the obsidian source located in the vicinity of Zaragoza, Puebla, was used quite heavily by each of these three Veracruz sites. This is not surprising in view of the proximity of this source; for example, the distance from Zaragoza to Cempoala is ca. 70 miles, to Quiahuitzlan, about 65 miles, and to El Tajin, only 45 miles. As we have earlier reported (Hester, Jack and Heizer, 1971; Hester, Jack and Heizer, 1972), Zaragoza obsidian is also a major type at the site of Tres Zapotes in southern Veracruz, and at Cholula in the central Mexican highlands. The predominant source at Cempoala is that of Cerro de Minas, lying 70 miles to the southwest. Also at Cempoala, there is a relatively large amount of the green obsidian characteristic of Cerro de las Navajas (Pachuca), about 100 miles to the northwest.

It is now well established that the Zaragoza obsidian source was much used by the occupants of sites in central and southeastern Mexico. We reiterate our awareness that archaeological site-geologic source correlations alone provide limited insight since sites occupied for long periods of time may have secured different materials at different times. Only stratigraphically controlled obsidian samples can throw light on this matter. Although we are now learning a great deal about the distribution of this type of obsidian, we still know very little about the source itself. It would be very useful if someone could carry out further studies at the source, and provide details on the nature and extent of the obsidian deposits. In addition, more extensive trace element analyses of source samples should be conducted so that we can more precisely define the chemical limits of this obsidian type.

We have now published a series of papers on x-ray fluorescence analysis of Mesoamerican obsidian. Many of the data obtained by these studies are summarized in Stross et al. (in press). However, for the reader's convenience we have prepared Table 1, in which we have listed the results of many of our recent analyses.

Table 1.

Distribution of Obsidian Types at Sites in Mesoamerica.
All figures are in percent.

	A (Cerro de las Navajas, Hidalgo)	B (Unknown)	C (Probably San Martin Jilotepeque)	D (Zaragoza, Puebla)	E (Cerro de Minas, Puebla)	F (Unknown)	G (Guadalupe Victoria, Puebla)	IXTE-PEQUE	EL CHAYAL	OTHER[1]
SEIBAL			42.9	7.1				7.1	35.7	7.1
LA VENTA (Excav.)	21.0	31.6	42.1							5.3*
LA VENTA (Surf.)	12.3	43.5	27.5	1.8	5.1	1.1	3.6			5.1*
CHOLULA	18.0	14.6		53.9	3.4	2.2	7.9			
TRES ZAP.	0.2	1.5	0.5	93.1	0.7	1.7	1.4			0.9
EL TAJIN				85.7		14.3				
QUIAHUIT-ZLAN	1.8	1.8		71.4	21.4					3.6
CEMPOALA	22.2			33.3	44.4					
CERRO DE LAS MESAS				18.8	75.0		6.2			

* Probably includes some El Chayal samples.

[1] This category includes obsidian types that have yet to be defined. Samples from La Venta (surface and excavated) may actually be derived from El Chayal, but this is not certain.

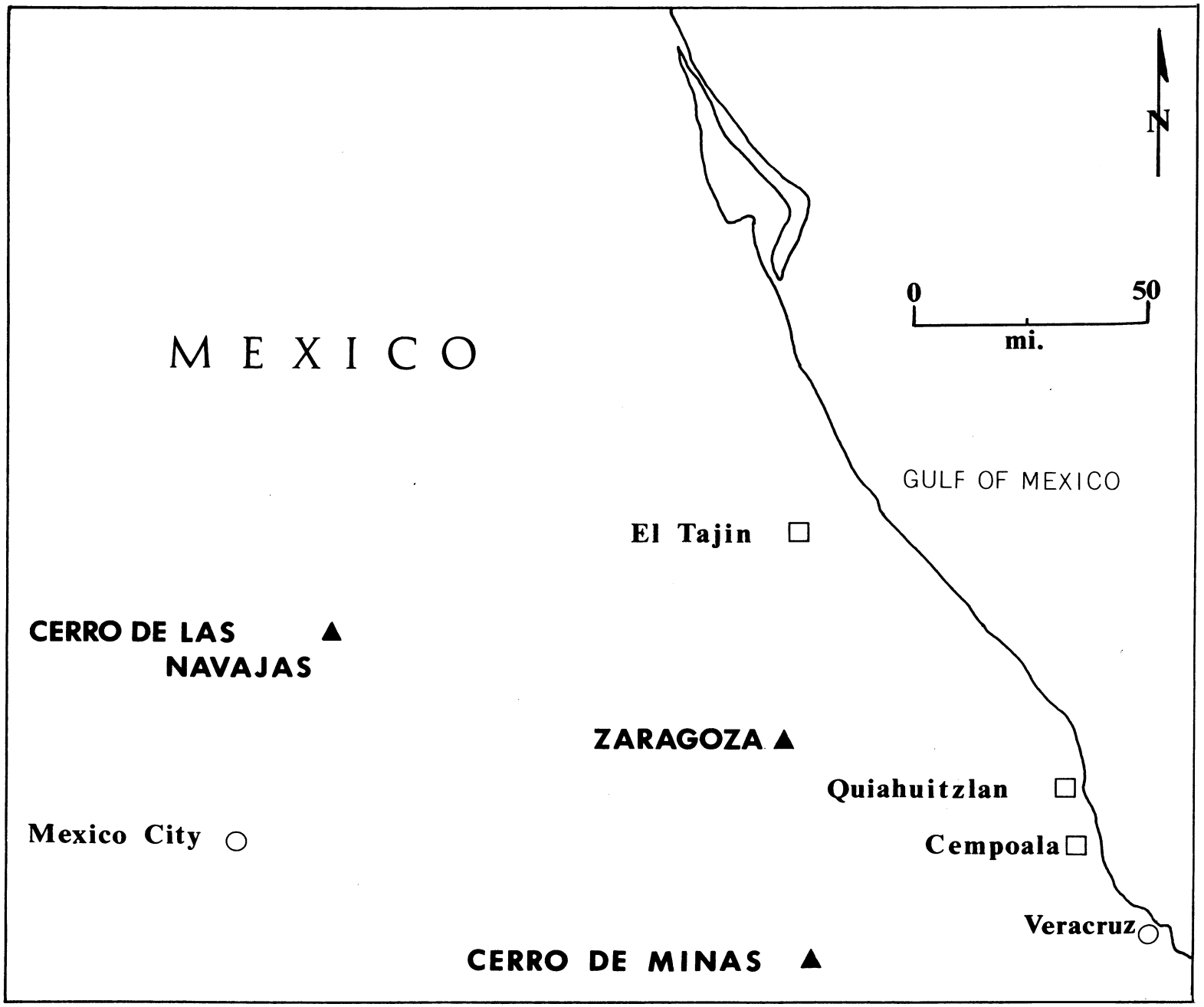

Figure 1. Geologic obsidian sources and archaeological sites in central and northern Veracruz, Mexico.

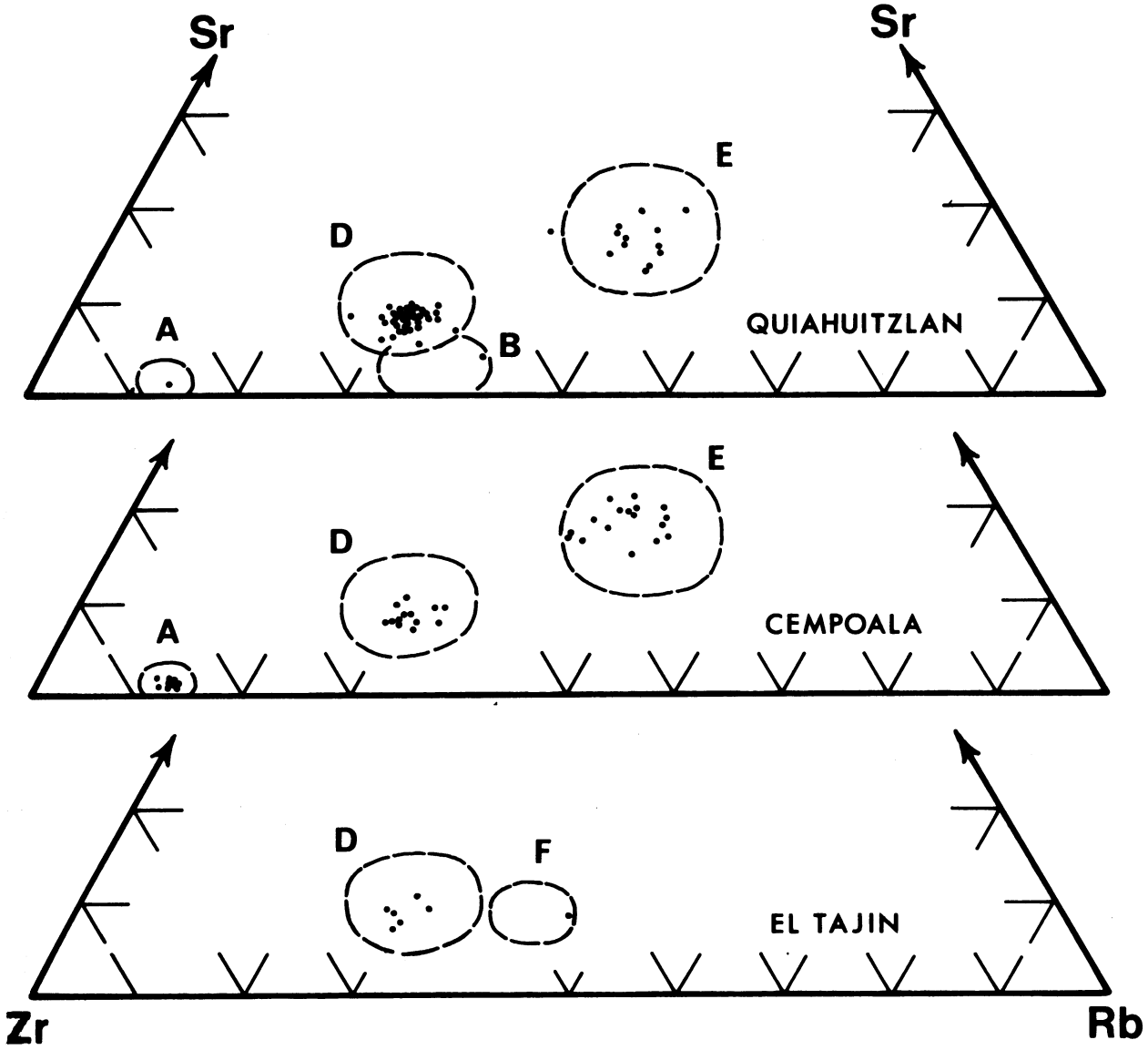

Figure 2. Plotted results of rapid-scan analysis of obsidian artifacts from central and northern Veracruz, Mexico. Each point represents the relative Rubidium (Rb) K-alpha, Strontium (Sr) K-alpha, and Zirconium (Zr) K-alpha intensities for one artifact.

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